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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,790

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Eiji Miyake

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P.O. BOX 980

VALLEY FORGE, PA 19482

EXAMINER

LE, LANA N

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PAPER NUMBER

2614

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,790	Applicant(s) MIYAKE ET AL.	
	Examiner Lana N. Le	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshikawa et al (JP 11-136151) (hereon Yoshikawa).

Regarding claim 1, Yoshikawa discloses a tuner (figs. 1, 2; paras. 23, 4, inherent tuner since LO output frequency is changed according the selected channel of choice to receive wherein channel selection of the intermediate signal is done with IF filter) comprising:

an input terminal (4) operable to receive a high-frequency signal, the high-frequency signal including a first high-frequency signal and a second high-frequency signal, the second high-frequency signal having a level larger than a level of the first signal (second high frequency signal has larger interference level than first high frequency signal);

a first filter (1) having an input port coupled to the input terminal, the first filter allowing a signal having the first frequency to pass therethrough (inherently passing necessary signal frequency so that big interference signal is not inputted into amplifier 8; para. 24) and attenuating a signal having the second frequency (attenuating image

Art Unit: 2614

frequency component of a second high frequency signal among the input signals received from antenna 12; para. 25);

a high-frequency amplifier (8) coupled to an output port of the first filter;

a second filter (2) having an input port coupled to an output of the high-frequency amplifier, the second filter allowing a signal having the first frequency to pass therethrough and attenuating the signal having the second frequency (further attenuating image frequency component of a second frequency signal among the input signals received from first filter (1); see para. 26, 25 when magnitude of attenuation of image frequency component is insufficient from filtering using first filter element 1, an image frequency component is further decreased by 2nd filter element 2);

a local oscillator (10); a mixer (9) for mixing the output of the high-frequency amplifier with an output of the local oscillator (10);

an intermediate-frequency filter (13) having an input port coupled to an output of the mixer; and an output terminal for receiving an output of the intermediate-frequency filter.

Regarding claim 3, Yoshikawa disclose the tuner of claim 1, wherein the first filter (1) is placed closer to the input terminal (4) than the high-frequency amplifier (8) is.

Regarding claim 5, Yoshikawa disclose the tuner of claim 1, wherein a transmission loss of the first filter at the first frequency is smaller than a transmission loss of the second filter at the first frequency (loss of first HF filter small; para. 26).

Regarding claim 9, Yoshikawa et al disclose a portable device (fig. 1; para. 1) comprising:

Art Unit: 2614

an antenna (ANT) operable to receive a high-frequency signal, the high-frequency signal including a first high-frequency signal and a second high-frequency signal, the second high-frequency signal having a level larger than a level of the first signal, a tuner (figs. 1, 2; paras. 23, 4, inherent tuner since LO output frequency is changed according the selected channel of choice to receive wherein channel selection of the intermediate signal is done with IF filter) including an input terminal (4) coupled to the antenna (ANT) (second high frequency signal has larger interference level which needs to be attenuated than first frequency signal; para. 24-25);

a first filter (1) having an input port coupled to the input terminal, the first filter allowing a signal having the first frequency to pass therethrough (inherently passing a necessary high frequency signal having a first frequency so that big interference signal is not inputted into amplifier 8; para. 24) and attenuating a signal having the second frequency (attenuating image frequency component of a second frequency signal among the input signals received from antenna 12; para. 25);

a high-frequency amplifier (8) coupled to an output port of the first filter (para. 23);

a second filter (2) having an input port coupled to an output of the high-frequency amplifier, the second filter allowing a signal having the first frequency to pass therethrough and attenuating the signal having the second frequency (further attenuating image frequency component of a second frequency signal among the input signals received from first filter (1); see para. 26, 25 when magnitude of attenuation of

Art Unit: 2614

image frequency component is insufficient from filtering using first filter element 1, an image frequency component is further decreased by 2nd filter element 2);

a local oscillator (10); a mixer (9) for mixing the output of the high-frequency amplifier with an output of the local oscillator (10);

an intermediate-frequency filter (13) having an input port coupled to an output of the mixer; and an output terminal for receiving an output of the intermediate-frequency filter.

a transmitter section (20, 22, 24, 15, 16; fig. 3) for transmitting the second high-frequency signal.

Regarding claim 11, Yoshikawa discloses the portable device of claim 9, wherein the first filter and the second filter have passing frequency controlled according to the second frequency (para. 25-26).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 7, 10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (JP 11-136,151) in view of Inoue (JP 2003-115778).

Regarding claim 2, Yoshikawa disclose the tuner of claim 1, wherein the filter elements 1 and 2 are surrounded by a periphery case 3. Yoshikawa do not disclose the tuner comprising a metallic case for accommodating the first filter, the high-frequency amplifier, the second filter, the local oscillator, the mixer, and the intermediate-frequency filter therein. Inoue discloses a shielding case having circuit blocks including the RF filters, amplifier, and the IF filter (para. 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shielding case for the RF and IF circuits to prevent other interfering signals from entering the shielded circuit block as suggested by Inoue. Yoshikawa and Inoue does not disclose metal is used for the shielding case. However, it is notoriously old in the art to use metal for the shielding case. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use metal for the shielding case in order to provide a type of material that provides an optimal shielding characteristic.

Regarding claim 7, Yoshikawa discloses the tuner of claim 1, wherein Yoshikawa do not disclose further comprising a metallic partition plate for surrounding the first filter. Inoue discloses a shielding case to cover a circuit block (para. 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shielding case for the filter block of Yoshikawa in order to prevent other interfering signals from entering the shielded circuit block as suggested by Inoue. Yoshikawa and Inoue does not disclose metal is used for the shielding case. However, it is notoriously old in the art to use metal for the shielding case. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use metal for the shielding

Art Unit: 2614

case in order to provide a type of material that provides an optimal shielding characteristic.

Regarding claim 10, Yoshikawa discloses the portable device of claim 9, wherein Yoshikawa does not disclose the device further comprising a case for accommodating the tuner and the transmitter section. Inoue discloses a shielding case can be used to cover circuit blocks of a tuner (para. 25). Yoshikawa and Inoue does not disclose the case can accomodate the tuner and the transmitter section. However, it is notoriously old in the art to use a shielding case to cover the tuner and transmitter section. It would have been obvious to one of ordinary skill in the art at the time the invention was made to shield the tuner and transmitter section in order to prevent the receiving tuner and the transmitter from damage and interference from outside the device.

Regarding claim 13, Yoshikawa discloses the portable device of claim 9, Yoshikawa does not disclose the device further comprising a case for accommodating the second filter, the local oscillator, the mixer, the intermediate-frequency filter, and the transmitter section, the case not accommodating the antenna, the input terminal, the first filter, or the high-frequency amplifier. In related art, Inoue disclose a device comprising a case for accommodating two or more circuit blocks (para. 25). Yoshikawa and Inoue do not specifically disclose the case accommodate the second filter, the local oscillator, the mixer, the intermediate-frequency filter, and the transmitter section, the case not accommodating the antenna, the input terminal, the first filter, or the high-frequency amplifier. However, it is well known in the art to shield certain components or circuit blocks based on design choice of preventing interference for the latter part of the

Art Unit: 2614

reception-end circuit for efficient signal processing and the transmission circuit for non-distorted signal transmission.

Regarding claim 14, Yoshikawa disclose the portable device of claim 13, Yoshikawa does not disclose the device further comprising a shield case for accommodating the first filter and the high-frequency amplifier. However, it is well known in the art to shield certain circuit blocks as disclosed by Inoue (para. 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to shield the first filter and HF amplifier in order to protect the front-end RF circuit from being distorted with other interfering signals in a separate shield case from the other circuit block.

Regarding claim 15, Yoshikawa discloses the portable device of claim 14, wherein a distance between the antenna (ANT) and the first filter (1) is shorter than a distance between the high-frequency amplifier (8) and the input terminal (4) of the tuner (see figs. 1, 2).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (JP 11-136,151).

Regarding claim 4, Yoshikawa disclose the tuner of claim 1, wherein an attenuation of the first filter (1) at the second frequency is about the same than an attenuation of the second filter at the second frequency (para. 25). Yoshikawa do not specifically disclose wherein an attenuation of the first filter at the second frequency is larger than an attenuation of the second filter at the second frequency. However, it is well known and notoriously old in the art to have the attenuation be more for the first

Art Unit: 2614

filter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the attenuation be more for the first filter since the role of the first filter is to decrease an unnecessary component so that a big interference signal's may not input into the high frequency amplifier 8 as disclosed by Yoshikawa, and using the second filter to further decrease the unnecessary component if the attenuation by the first filter is not sufficient so as to improve the sensitivity as suggested by Yoshikawa (para. 24, 27).

6. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (JP 11-136,151) in view of Fukamachi et al (US 2004/0,266,378) (hereon Fukamachi).

Regarding claim 6, Yoshikawa disclose the tuner of claim 1, wherein Yoshikawa does not disclose the first filter comprises: a notch filter for attenuating a signal having the second frequency only; and a low pass filter coupled in series to the notch filter, the low pass filter allowing the signal having the first frequency to pass there through and attenuating the signal having the second frequency. Fukamachi disclose a filter comprising a notch filter (NF) for attenuating a signal having the second frequency only; and a low pass filter (LPF) coupled in series to the notch filter, the low pass filter allowing the signal having the first frequency to pass there through and attenuating the signal having the second frequency (fig. 10; para. 166). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the first SAW filter of Yoshikawa with the notch filter and LPF of Fukamachi in order to save cost.

Art Unit: 2614

Regarding claim 12, Yoshikawa discloses the portable device of claim 11, wherein Yoshikawa does not further disclose each of the first filter and the second filter includes a variable capacitance diode. Fukamachi disclose the filters comprising a variable diode (para. 120). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a variable diode in order to provide an attenuation peak which can be controlled by an external signal as suggested by Fukamachi.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (JP 11-136,151) in view of Standke (WO 03/055,091)

Regarding claim 8, Yoshikawa discloses the tuner of claim 1, wherein Yoshikawa disclose the tuner further comprising a wire for coupling the input terminal (4) to the first filter (1). Yoshikawa do not disclose the wire is greater than $1/8$ of a wavelength of the first frequency. In related art, Standke discloses a tuner comprising a wire (8a) for coupling the input terminal to the first filter (12), the wire's physical length is expressed in term of the wavelength of the signal of interest and the electrical length of the transmission line and its dielectric constant (para. 30, 47). Standke does not specifically disclose the wire is greater than $1/8$ of a wavelength of the first frequency. However, it is notoriously old in the art to use a wire greater than $1/8$ of a wavelength of the first frequency. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a specific length wire in order to quickly provide the necessary input signal to the filter.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N. Le whose telephone number is (571) 272-7891. The examiner can normally be reached on M-F 10:00-18:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lana N. Le/
Primary Examiner, Art Unit 2614

Application/Control Number: 10/584,790
Art Unit: 2614

Page 12